6.

A PANEGYRICK ON THE *Newtonian* PHILOSOPHY.

SHEWING THE

NATURE and DIGNITY

OF THE

SCIENCE,

AND

Its abſolute Neceſſity to the Perfection of HUMAN NATURE; the Improvement of ARTS and SCIENCES, the Promotion of true RELIGION, the Increaſe of WEALTH and HONOUR, and the Completion of HUMAN FELICITY.

Benjamin

By B. MARTIN.

Fælix qui potuit Rerum cognoſcere Cauſas,

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To all my Worthy

SUBSCRIBERS.

Gentlemen and Ladies,

THE ſingular Honour you do me in giving me an Opportunity to lay before you, in a COURSE of LECTURES and EXPERIMENTS, the great and noble Diſcoveries in natural Science by Sir *I. Newton*, and thereby a Solution of the principal and moſt intereſting Phœnomena of Nature, calls upon me for the warmeſt Acknowledgments of Gratitude. To you, therefore, I beg Leave to inſcribe the following Eſſay in Praiſe of that Science, which above all others recommends itſelf to the Regard of Mankind, and which you have ſhewn ſuch a laudable and generous Diſpoſition to encourage. While others trifle away their time in low, ſenſual and unworthy Amuſements, you have the Happineſs of a rational Curioſity, and are capable of the nobleſt Methods of improving it. You hereby ſet illuſtrious Examples to the reſt of your Species, and lay the ſureſt Foundation of Honour and Eſteem to yourſelves. The Friends of Philoſophy are the Friends of Mankind; every Proſelyte to this Science muſt give infinite Pleaſure to its Profeſſors and Admirers, but to none more than to

Your moſt obliged

and obedient

humble Servant,

B. MARTIN

A
PANEGYRICK
ON THE
Newtonian PHILOSOPHY.

The Deſign of this Piece.

AS an *Eulogium* on PHILOSOPHY is my profeſs'd Deſign, I ſhall ſet forth its Dignity and Excellence, and expatiate in its Praiſe, thro' a Series of Speculations on its Nature, Subject, and End; and the Utility, Pleaſure, and Happineſs which from thence redound to Mankind.

The Nature of Philoſophy.

The Nature of Philoſophy is *Science* itſelf; its Eſſence is *Knowledge*; and *Wiſdom*, in all its various Branches, makes up its conſtituent Parts. Theſe are all ſynonymous Terms, and (as is well known to the Literati) are implied in the *Etymon* of the Word; for what in *Greek* is call'd *Philoſophy*, is, in plain *Engliſh*, a *Love of Wiſdom*, or a *Diſpoſition* to *Knowledge and Underſtanding*. Is there, then, any Dignity in Science? Is Knowledge a noble Quality? Is Wiſdom in every ſhape Praiſe-worthy? Then ſo is Philoſophy; ſuch is that Science, whoſe every Attribute is founded on ſomething ſuperlatively great and ſublime.

It excels all Profeſſions in this reſpect.

There are, indeed, other Profeſſions whoſe Nature conſiſts in Science, but in no reſpects comparable to that of Philoſophy; for this has for its Subject Things of the higheſt Nature and Concernment, is moſt extenſive, and conduces to the greateſt Ends, and the moſt general Good; whereas theirs is more reſtrain'd and particular, converſant with Objects of a much inferior Nature, and leſſer Importance, and anſwer only a few (and thoſe not always neceſſary) Ends. Thus *Poetry* is the Science of verſifying, *Muſic* of modulating Sounds: *Grammar* teaches the Uſe of Letters and Words, *Rhetoric* gives Rules for ſpeaking floridly, and ſo of others; but theſe Sciences are evidently little more than the Embelliſhments of human Life, whoſe *Summum Bonum*, or real Bliſs, is wholly derived from the pure Fountains of Philoſophy.

True Philoſophy diſtinguiſh'd from the falſe.

Nor am I here to be underſtood according to the common Acceptation of the Word PHILOSOPHY; for what vain Imaginations, what whimſical Conjectures, what preſumptuous Hypotheſes and wretched Reveries of every Sort, have not at times been uſhered into the World, and gilded o'er with this reſpectable Name. The STOICS of old abuſed it to ſubvert the Nature of Things, and to perſuade us out of our Senſes, which all conſpire to convince us that *Pain is an Evil.* The *Sceptic* alſo takes this venerable Word in the moſt abuſive manner, to inforce a Doctrine directly repugnant both to Common-Senſe and Reaſon, *viz. The Uncertainty of Demonſtration itſelf.* Again, the *Democratic* School would make us believe, that Particles of inert Matter, from their moſt chaotic State, could dance into *Form* and *Order*, compoſe harmonious Syſtems of Worlds, eſtabliſh Laws of Motion, and be productive of Increaſe, Life, Senſe, and Soul in all its various Degrees, in themſelves alone; and to this they were impious enough to give the Term *Philoſophy*. Theſe monſtrous Poſitions have been an *Opprobrium* to the Science; and againſt theſe only it is that the Apoſtle inveighs, when he dehorts *from the Philoſophy and vain Deceit* of the Heathen.

Among the Ancients.

Among the Moderns.

Yet farther, our modern Sceptics have improved upon the Ancients, and would have us doubt not only of the Accidents of Bodies, but even of Matter or Subſtance itſelf. They, forſooth, tell us, that all Things may conſiſt in Phantaſy and Idea, without any ſuch thing as real Subſtance, or ſolid Particles of Matter in the World. *Deſcartes* has alſo adopted the old atheiſtical Tenets of *Lucretius*, with ſomewhat of a Fineneſs, and makes a World *a-la-Mode de Paris.* A Horſe and a Clock, with him, are only two different ſorts of Machines, both equally deſtitute of Life and Senſe; and this they have preſumed to call by the Name of *Philoſophy*.

The Attributes of true Philoſophy.

Not ſuch is the Philoſophy of which we treat, but as different therefrom as Light from Darkneſs, as Reaſon from Abſurdity, or Truth from mazy Error. It affronts not Common-Senſe, controuls no reaſoning Powers, nor contaminates our Minds with impious and irreligious Sentiments. On the contrary, it is every way agreeable to, and nicely quadrates with the pureſt Dictates of them all; a Syſtem of plain and genuine Truth, and inſpires ſuch Principles only as naturally tend to correct our Senſes, to improve our Reaſon, to enlarge our Underſtanding, to illumine the Mind, and raiſe the Soul to the higheſt Pitch of rational Knowledge our Nature will admit of in this earthly State.

From

Philoſophy the higheſt Perfection of our Nature.

From what has been ſaid, and from a Conſideration of our own Being, it evidently appears, that Philoſophy is the greateſt Excellency and the higheſt Perfection of human Nature. For what is our Make or Conſtitution, but Body and Mind. As to the firſt, 'tis plain we are not denominated Men from thence; for Body conſider'd as Matter only, is common to all Things in this World; and Body conſider'd as endued with a Power of *Growth* or *Increaſe*; is common to VEGETABLES and Foſſils. Again, Body conſider'd as animated or endued with *Life* and *Senſe*, is common to every Species of ANIMALS in Nature, even the *Oyſter* and the *Polype* enjoy theſe Prerogatives; and it is very much to be queſtion'd if Mankind be not, in this reſpect, inferior to any other Animal, the meaneſt Reptile not excepted.

Which does not conſiſt in an animated Body,

nor in the human Form,

As it is not in the Matter of Man's Body that we are to ſeek for the Excellence and Dignity of our Nature, ſo neither does it reſult from the *Form* of Man. For all that can be ſaid in this reſpect, is no more than this, That the *Form* of our Bodies is the moſt commodious, and beſt adapted to anſwer the Purpoſes of human Life; and as much as this may be ſaid for the Form of every Animal. Beſides, the Difference between our Bodies and that of a Brute, (*i. e:* a Quadrupede) is rather in the *Poſition* than

Form of the Body, for the Parts are nearly the ſame in both; only they have a prone Poſition, we an erect one; they walk on *all four*, we only on our *two (hind) Legs*. Perhaps the *want of a Tail* may be urged by ſome as a Decency peculiar to the human Form; but in this reſpect too we are but on a Par with ſome of the *Monkey Tribe*, particularly the *Ouran, Outang*, or *Chimpanzee*, who not only has no Tail, but walks erect, ſhews a Body leſs hairy than ſome of the human Species, and ſeems to talk as intelligibly to us, as any of his fellow Natives of *Angola* would do, in our own Shape.

but in the Powers of the Mind.

Since, then, we have little to vaunt of on account of our *corporal Qualities*, there muſt be ſome other Principle in which the Dignity and Superiority of human Nature conſiſt; and that can only be the MIND. It is the MIND of Man by which he excels all other earthly Beings. This alone is that *Image and Likeneſs* of the DEITY in which he was firſt form'd, and from whence all real *Humanity* is derived: Nor is it the natural, the rude, and undiſciplin'd Mind, the thing we are ſpeaking of; this is no more than what we properly call *Inſtinct*, and what is common to us likewiſe with the Brute Creation, according to their ſeveral Kinds. But the Mind which is properly and truly *Human*, is that only which is well inform'd, and fraught with proper Erudition, and the Seeds and Principles of natural Knowledge; that is, with TRUE PHILOSOPHY. Philoſophy is to the Mind what Quickſilver is to the poliſh'd Glaſs, it foliates the Underſtanding, and cauſes it to reflect the *lively Image* of infinite Science and Wiſdom.

And theſe are made perfect only by Philoſophy.

PHILOSOPHY, therefore, is the only Source of all true Glory and Greatneſs in the human Mind, and the ultimate Perfection of our Nature. For herein doth the Life of Man moſt properly conſiſt; without Philoſophy we cannot be ſaid to live a *human Life*, which does not conſiſt of a *State of Senſation for ſo many Years*, for this is a brutal or mere animal Life; but is meaſured by *a Succeſſion of rational and ſublime Ideas, which paſs in a given Time in the Mind*. Thus he who revolves twice the Variety of Ideas in his Mind, in the Space of one Day, lives as much in that one Day as another does in two, whoſe Conception is but half ſo extenſive. Conſequently, thoſe who have the moſt capacious Minds, and comprehend the greateſt Variety of noble and exalted Ideas, enjoy Life in the greateſt Perfection, and in the higheſt and moſt exquiſite Degree. As on the other Hand, thoſe who are Strangers to Philoſophy, that is, who are actuated only by animal Inſtinct, or Senſation, and the vulgar Ideas thence ariſing, can ſcarcely be ſaid *to live at all*; theſe ſhould be look'd upon as ſo many Abortions or Miſcarriages in forming the *ge-*

nuine human Mind. Theſe are not ſo properly call'd *Men*, as *hominiform Animals*, or Creatures in the *Shape of Men.*

Philoſophy alone can form the Soul of Man.

As the Body without the Soul is dead, ſo the Soul, without a philoſophic Erudition, is, in a manner, dead alſo; for thus it only animates the Body, and degenerates into meer human Inſtinct. Knowledge is to the Mind what Food is to the Body; without Food there can be no Nutrition, no Growth, no Salubrity in the Body; and without natural Science, or Philoſophy, the Mind or Soul of Man can receive no Increment, no Expanſion, no Perfection or Conſummation, but is little, low, and weak; and an univerſal and inſanable Cachexy conſumes ſuch depraved and emaciated Minds.

The high Eſtimation of Philoſophy among all wiſe Men.

Is Knowledge, then, ſo neceſſary, ſo natural, ſo eſſential and important a Principle to Man? No wonder we find it ſo amiable and deſirable to, ſo arduouſly ſought after, and exquiſitely delineated by every wiſe and well-form'd Mind. Let us only obſerve in what ſublime and figurative Strains this ſound Knowledge, or true Philoſophy, is characteriſed and recommended by the ancient eaſtern Sage, under the Perſon of divine Wiſdom.—*Doth not Wiſdom cry, and Underſtanding put forth her Voice?—Unto you, O Men, I call, and my Voice is to the Sons of Man. O ye ſimple underſtand Wiſdom, and ye Fools be of an underſtanding Heart.—Re-*

Proverbs, Chap. VIII.

ceive Inſtruction, and not Silver; and Knowledge rather than choice Gold. For Wiſdom is better than Rubies; and all the Things that may be deſired, are not to be compared with it. Riches and Honour are with me.—I lead in the Way of Righteouſneſs, in the Midſt of the Paths of Judgment.—The Lord poſſeſſed me in the Beginning of his Way, before his Works of old. I was ſet up from everlaſting, or ever the Earth was.—When he prepared the Heavens I was there.—When he eſtabliſhed the Clouds above.—When he gave the Sea his Decree.—When he appointed the Foundations of the Earth. Then was I by him, and I was always his Delight.—Now therefore hearken unto me, O ye Children.—Hear my Inſtructions and be wiſe.—Bleſſed is the Man that heareth me, watching daily at my Gates.—For whoſo find me findeth Life, and ſhall obtain Favour of the Lord. But he that ſinneth againſt me wrongeth his own Soul: All they that hate me love Death.——What a noble Allegory is here of this divine Science? And how emphatically is it recommended to Mankind? How great the Bleſſings which attend it? And the Wretchedneſs of thoſe who ſlight and neglect it.

Philoſophy is moſt excellent in reſpect of its Subject.

The SUBJECT of Philoſophy is that which, next to its Nature, enobles it, and gives it the Preheminence of all other Sciences. Every Science derives the greateſt Part of that which makes it amiable to Mankind

kind from its Subject. For tho' all Knowledge is, in itſelf, valuable and deſireable, and tends ſome way or other to a general Good, yet every Branch is not equally pleaſant and agreeable in the Purſuit, nor attended with equal Advantage to the Student. But what Science can compare with Philoſophy, in regard to the exquiſite and ineffable Pleaſure and Tranſport that never fails to ariſe in a well-formed Mind from its Subject, *(i. e.)* from a Contemplation of the manifold and wonderful Works of God.

Viz. *the general Contemplation of Nature.*

The Buſineſs of this Science is to enable us, in a proper manner, to conſider the HEAVENS, that is, the infinite Space, the interminable Void, the *To-pan*, or *Univerſe* of all created Worlds, the *Sun* and *Stars* which God has ordain'd; it ſhews us that Suns and Stars are Synonymous, and muſt equally imply thoſe immenſe Fountains of Light and Heat, which, in form, govern and animate a Syſtem of revolving Planets: And thus it aſtoniſhes the Mind with a certain and indubitable Proof and Proſpect of an Infinity of Worlds, and creates an Idea every way worthy of, and adequate to the Notions we ought to entertain of an infinitely wiſe, perfect, and powerful Being.

Particularly our own Syſtem or World, as govern'd by the Sun.

PHILOSOPHY, in the Degree it is imparted to us, can, indeed, contemplate only one of thoſe innumerable Worlds particularly; but then, from this alone, it fills our Minds with ſublime and auguſt Ideas; Ideas ſtrange and incredible to the uninſtructed unphiloſophic Mind. The *Virtuoſo* is hereby taught, that the SUN is made not only to rule the Day, or enlighten one Earth, but many; that it is not a ſmall but an immenſly large Body of concentrated Fire, the conſtant Emanations of which give Light, Life, and Motion to every Creature in each revolving World.

and conſiſting of primary Planets;

For by this Science we farther learn, that the *Sun* informs a beautiful and harmonious Syſtem of planetary Bodies, which conſtantly revolve about him, govern'd by one equable and univerſal Law. That theſe planetary Orbs are not ſmall Points of ſhining Light, as they ſeem to the uninſtructed Eye, but large, very large and opake Bodies, which have no Light in themſelves, but ſhine with the borrow'd Light of the Sun: And among theſe Philoſophy ſhews us our EARTH, the terreſtrial Ball on which we live; it convinces us that it revolves about the Sun like the reſt, but in a ſmaller Orbit, and at a nearer Diſtance than many of them: It ſhews us that (whatever high Opinion we may have of our native Globe) it is very ſmall indeed, yea, almoſt inconſiderable, in regard of ſome of the other Planets, one of which is at leaſt a thouſand times as large, and others at ſuch a Diſtance, that ſo ſmall a Planet as our Earth quite vaniſhes from their Sight.

and Secondaries, or Moons.

Philoſophy ſhews the Planets to be habitable Worlds.

Philoſophy diſcovers to our View a Scene of ſecondary Worlds, or Syſtems of ſecondary Planets, circulating about the Primaries as they do about the Sun, and accordingly by one and the ſame univerſal Law. And as we know one of the primary Planets (*viz.* our Earth) to be the Habitation of infinite Species of Animals, and productive of as great a Variety of Plants, Minerals, Foſſils, Earths, *&c.* ſo by Analogy we are taught to underſtand the ſame of all the reſt. Thus alſo the Philoſopher, by deſcrying various Mountains, Hills, Valleys, and extenſive Plains in the Globe of our Moon, juſtly concludes the ſame Things are to be obſerv'd in thoſe of *Jupiter* and *Saturn*, by the Inhabitants of thoſe Planets: And hence infers the various Globes, which compoſe our Syſtem, are ſo many particular habitable Worlds; and that, therefore, every Syſtem, proper to each ſolar Star, thro' all the Infinity of Space, are ſo many habitable Worlds, of numberleſs different Beings, poſſeſſing every Degree of animal and vegetable Life; and this creates in our Minds a moſt ſublime and auguſt Idea of the Works of creating Power and Wiſdom, highly worthy of the divine Author, and deſerving our ſerious Contemplation and Curioſity.

And to have the Viciſſitude of Seaſons, Day and Night, &c.

By this divine Science, we are adduced to a yet more intimate Knowledge of the Nature of theſe remote and (to the Vulgar) unknown

known Bodies. We hereby diſcover not only their Motions about the Sun, but, in many of them, a regular and uniform Motion about their own Axes; and not only that, but alſo the Times in which thoſe Motions are perform'd; ſo that of courſe we are hereby taught that they have alternate *Day* and *Night* (as well as our ſelves) throughout their Years reſpectively. Not only this, but even the different Lengths of Days and Nights in thoſe Planets, are demonſtrated by philoſophical Diſcoveries: And, again, we are hereby aſſured they enjoy a *Variety* or *Viciſſitude of Seaſon*, in ſome a greater, in others a leſs degree than what we find in our own Globe.

It alſo diſcovers two Motions in the Sun.

Yea, ſo exquiſite are the Reſearches of this Science, that the ſame Motions we have been deſcribing in the Planets, are diſcover'd in the Sun itſelf. For the Center of the Sun is conſtantly deſcribing an Orbit about the common Center of Gravity of the Syſtem, and at the ſame time the Body of the Sun uniformly revolving about its own Axis; which two wonderful Motions of this great Luminary, are to be known only by the Votaries of Philoſophy.

Alſo the Maculæ, *or Spots in the Sun and Planets.*

Farther, we are hereby ſhewn, that not only in the Moon, but in all the celeſtial Bodies in general, there are different kinds of Matter in their Compoſition; the greater *and Secondaries, or Moons.*

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Part of which will reflect Light, and ſhew them luminous; but the other will not, by which means, in thoſe Parts, they appear dark, and are variegated with Spots. Nor is there any of thoſe Bodies ſo remarkable in this reſpect as the Sun itſelf; for tho' it be the very Eſſence of Fire, it has, nevertheleſs, ſome very dark Parts, of a ſurprizing Magnitude, which emit no Light, and are variable as to their Form, Bulk, and Appearance.

Philoſophy only has perfected the Doctrine of Comets.

Beſides the celeſtial Scenes hitherto mention'd, Philoſophy preſents us with a View of one more, tremendous, indeed, to the Mind, devoid of Science, but the greateſt Inſtance of Wiſdom, Order, and Harmony that can be found for curious Contemplation. The BLAZING COMET cannot more ſurprize and terrify the Peaſant, than it delights and gratifies the Mind and Sight of the Philoſopher. Charm'd with the rare Phænomenon, he bids, for a while, adieu to indifferent Things, and attends, with Tranſport, the novel Object of the Skies. Conducted by Philoſophy, he views, with teleſcopic Eye, the wondrous Ball, contemplates its rapid and accelerated Courſe towards the Sun, its near Approach to the Sun's Body, the amazing Lengths of its aſcending rarified Atmoſphere of kindled Vapour, which he is taught to meaſure, and finds it to extend many Millions of Miles among the Spheres of neighbouring Planets. He views, intrepid, the mighty Flame, oft whirl'd with impetuous Force acroſs the Path of the Earth: He follows the departing devious Planet, as far as Sight will permit; and can afterwards eaſily attend him, in his Mind, to its moſt diſtant Retreat, in the dark and empty Regions of Space: He ſees it diminiſhing in Heat, contracting its Tail, and retarding its Courſe to the laſt. Philoſophy then unfolds the Laws of its Motion, determines the Form of its Orbit, and eſtabliſhes a Theory for Calculation, as certain as in any of the leſs erratic Planets.

And alſo of Eclipſes.

By Philoſophy we are taught to underſtand the Nature and Cauſe of ECLIPSES; and enabled to fore-tell, for any time to come, when theſe Deficiencies of Light will happen in either Luminary. Alſo, what the Quantity thereof will be, the preciſe Time of their Continuance, when viſible or inviſible to us, or to any Part of the Globe. So that what the Vulgar Mind is unexpectedly ſurpriſed with, the Philoſopher naturally looks for, and knows muſt happen, in conſequence of the eſtabliſh'd Laws and Order of the heavenly Motions.

Alſo the Nature and Properties of Air,

From celeſtial Regions we deſcend to the Neighbourhood of our own Globe, which we find every way ſurrounded with a *fine inviſible Matter*, call'd the ATMOSPHERE, or AIR. And here what wondrous Scenes of ſublime and uſeful Knowledge does Philoſophy diſcloſe! We here learn the true Origin, the Generation, the various Properties and Qualities of this ſubtile, ethereal Matter; we are taught the Reaſon of its *Weight* and *Preſſure*, and how to eſtimate the Quantity thereof, ſo amazing to the unexperienc'd Mind. We are farther inſtructed into the Cauſe of the *Elaſticity* or *Spring* of the Air, and know from hence its Fitneſs for the *Propagation of Sounds*, for *Reſpiration in Animals*, for *Vegetation in Plants*, and for various other Purpoſes in the Oeconomy of the World. The various *Denſity* or *Rarity* of the Air, is a Matter which Philoſophy ſets in the cleareſt Light; and hence we ſee the Reaſon of the *Riſe of Vapours*, and the *Formation and Suſpenſion of Clouds* to various Heights therein. We hence learn how it becomes the proper Medium for the Generation and Production of all kind of *Meteors*, as the *Aurora Borealis*, *Lightning*, *Hail*, *Snow*, &c. We are alſo made acquainted with the particular Manner in which it *detains the Light* to render all Things viſible about us; and the abſolute Neceſſity thereof, for the Exiſtence of *Fire and Flame*. Theſe and many

And its various Meteors are hereby known.

many more, are the noble Topics of philoſophic Erudition, in this Part of Nature's handy Works.

The whole Doctrine of Light owing to the Newtonian *Philoſophy.*

Philoſophy now conducts us to the exquiſite Contemplation of Light, and her Leſſons on this Subject are beyond all Expectation clear, ſubtile, and ſublime. We are here convinced of the true Nature of that ſort of Matter which enlightens the whole Mind, and renders all Things viſible to the Eye. We now ſee it clearly prov'd that Light is not a *Quality of Bodies*, (as the *Pſeudo Philoſophers* taught) but a *real Body*, or ſpecific Subſtance, which is found to poſſeſs all thoſe Properties and Qualities which are common to all ſorts of Matter. We find in it *local Motion*, and are aſſured of the true *Velocity of its Motion*, to a ſurpriſing Degree of Exactneſs. We are at the ſame time made to ſee, that the Velocity of Light incredibly exceeds that of any other ſort of Body: We hence learn alſo the exceeding Tenuity or Smallneſs of its Particles, and how by this means it is fitted for the Medium of Viſion. Laſtly, we are taught the particular manner in which Light acts upon other natural Bodies, and they upon it; and from hence are enabled to account for the principal Phænomena of Nature.

And the Nature and Cauſe of Heat and Cold, Fire and Flame.

Thus we are ſhewn, by true Philoſophy, how the Particles of Light, by their extreme Velocity, actuate the Parts of all Bodies, (which they enter by reaſon of their Smallneſs) and thereby produces all the different Degrees of *inteſtine Motion*, and conſequently of COLD, WARMTH, HEAT, FIRE, and LUMINOSITY, which depend thereon. And as theſe Qualities of Bodies are produced by Light, ſo they produce an Infinity of others, and are the Cauſe of moſt of the Operations of Nature, as we ſhall ſhew in the Sequel of theſe Reflections. Hence we ſee how Light comes to be the moſt univerſal Agent of Nature, deſpenſed thro' all the Syſtem from the *Magazine or Receptacle of Fire* in the Sun's Body.

Alſo the true Principles of Optics.

By Philoſophy we alſo learn the particular manner in which *Bodies act upon Light*, viz. by *reflecting*, *refracting*, and *inflecting* the Rays thereof; alſo, the determinate Laws by which each of thoſe Operations are perform'd, together with the various Powers in different Bodies which produce thoſe Effects. And hence the Foundation and Principle of the moſt delightful Science of OPTICS are clearly underſtood.

And the whole Doctrine of Colours.

By the PHILOSOPHY *of Light*, it is that we arrive at the true *Doctrine or Cauſe* of COLOURS: We are thereby taught how they all ariſe from the different Action of the Particles of Light, on the Expanſion of the Optic Nerve in the Eye; and that theſe reſult wholly from the different Magnitudes of the Particles of Light, which is demonſtrated from the *Analyſis of Light*, by Experiments of the *Priſm*. Hence the Reaſon why one and the ſame Body is ſuſceptible of any Colour whatſoever, and will appear of one Colour by *Reflection*, and of another by *Refraction*. Hence the Doctrine of *Compoſition* and *Tranſmutation of Colours*: Hence, laſtly, the Cauſe of the *Variety and Inverſion of Colours* in the *celeſtial Bows*; of *Haloes*, *Parhelia's*, &c. becomes clear and evident to the ſtricteſt mathematical Demonſtration.

The Reaſon of Tranſparency and Opacity.

By PHILOSOPHY we learn the true Cauſe of *Tranſparency* and *Opacity* in Bodies, and know it to be juſt contrary to the Vulgar Opinion: For Bodies are *pellucid* on account of the Smallneſs of the Parts and Pores; and *opake*, when they are large: The moſt opake Body becomes tranſparent by a ſufficient Diminution of its Parts; and the moſt tranſparent will become opake by enlarging its Pores. And the Reaſon of all this is evident on the Principles of this Science only.

It inveſtigates the Nature, Cauſes, and Quantity of Motion.

Philoſophy not only ſearches out and demonſtrates the *Laws of Motion* in the *grand* Machinery of mundane Syſtems, but likewiſe explores and ſettles the ſame with reſpect to the mutual Action of all Bodies upon each other, whether *Mediately*, by any intervening Power, or *Immediately*, by *Contact or Percuſſion.* It is this Science alone that can give us any proper Ideas of *Motion* and *Reſt*; all we can have without are abſolutely uncertain in their Quantity, and falſe in their Direction. Or, in other Words, no Man can tell whether a Body does really move or not, nor which way, nor with what Degree of Velocity, unleſs inſpir'd by Philoſophy. The *Quantity of Motion*, or the *Percuſſive Force*, in any caſe of ſtriking Bodies, is not to be eſtimated or underſtood but by the Axioms of Philoſophy: And that *Action* and *Re-action* between Bodies are equal, or that the moving Cart acts upon the Horſe, as much as the Horſe does upon it, never ſounds abſurd but to the unphiloſophic Ear.

And is the true Foundation of Mechanics.

The *Doctrine* and *Science* of MECHANICS is purely philoſophical, as it depends entirely on Gravitation, and the Laws of Motion. While, therefore, PHILOSOPHY unfolds to us the *Nature* and *Laws of centripetal and centrifugal Forces*, and the Manner in which Bodies affect each other thereby, we evidently ſee all that relates to the *Gravity* or *Weight* of Bodies, and to the various *Momenta* or Forces with which they act on each other by means of Inſtruments, at different Diſtances, and with different Quantities of Matter: And in this conſiſts the whole *Theory of mechanic Science.* Hence the particular Properties, and a juſt Eſtimation of the Forces of all the ſimple mechanical *Powers,* (as they are call'd) *viz.* the LEVER, the PULLEY, the AXIS IN PERITROCHIO, the INCLINED PLANE, the WEDGE, and the SCREW, (together with all Kinds of BALLANCES) at once become known; and from thence the Structure and Powers of all *compound Engines* and *Machines,* as *Cranes, Mills, Clock-Work,* &c. become facile to the PUPILS of *Philoſophy.*

And the mechanical Powers.

From the more obvious Powers of Nature, we are led by Philoſophy to a View of her more ſecret and amazing Scenes of Action: We have here open'd to our Minds the *wondrous Laboratory of Nature,* and the ſtupendious Proceſſes therein carrying on, unheeded and unthought of by the Vulgar. This Part of Philoſophy is the *Microſcope of the Mind*; we hereby view all the ſmall Particles of Matter, endow'd with a *mighty Power of Action,* by which they are conſtantly actuating each other by ATTRACTION or REPULSION; and

It explains the Laws of Attraction and Repulſion.

hence enſues that Variety of *Properties*, *Qualities*, and *Phænomena* depending on the *Figure*, *Size*, *Motion*, and *Action*, of the Corpuſcles, or conſtituent Parts of Bodies.

And thereby the various Properties of Bodies.

Thus we are ſhewn, that thoſe Particles, by attracting each other, do cohere together with various Degrees of Firmneſs, according as they touch by a greater or leſs Quantity of Surface; and thus conſtitute all Variety of Bodies, with different Degrees of Conſiſtence, from the *Hardeſt* to the Softeſt, and from the moſt *fix'd* to the moſt *fluid* Bodies in Nature.

On the other Hand, we are taught by the Precepts of this Science, that when the Particles of Matter are ſeperated beyond the Sphere of Attraction, there commences a *repulſive Power*, by which they equally and mutually repell each other, and by this means acquire what is uſually call'd their *Springineſs* or *Elaſticity*. Hence the prodigious Force of all *elaſtic* Fluids, as Air, heated Vapour, *&c.* is eaſily accounted for on this Principle of a *centrifugal Force*, actuating the ſeparated Parts of Matter.

Alſo the Rationale of the various Proceſſes of Chemiſtry.

On this PHILOSOPHIC THEORY depends the Solution of all the Phænomena attending the various Proceſſes of Chemiſtry: We hereby ſee the Reaſon why, upon a Mixture of different Sorts of Matters, there often enſues a violent inteſtine Motion in the Mixture, by which various Degrees of Heat, and ſometimes *Flame*, are inſtantly produced, attended with great *Ebullition* and *Colluctation* of the Parts. We ſee how *ſolid Bodies diſſolve* in various *Menſtruums*; and *fluid ones* become *fix'd* and *hard*. We ſee why *heavy Bodies* are ſuſpended in *lighter Fluids*, and the opakeſt render'd by Solution the moſt tranſparent: And the Methods of analyſing all kinds of natural Bodies, and examining their component Parts or Principles, are clearly pointed out. Yea, ſo far does Philoſophy proceed in the Powers of Nature, as almoſt to create any Body required, from the given Principles of Matter, and their known Laws of Action.

And the Nature of Foſſils, Ores, and Metals.

Furthermore, Philoſophy conducts us to the interior Receſſes of the Earth, and there ſhews us the mighty Operations of Nature; ſuggeſts to us the Manner how *Metalic Ores* are generated; how Earths concrete into various Forms of *Stone*; how *Sulphur*, *Salts*, and other Principles of natural Chemiſtry, produce the Variety of mineral Waters; why ſome are hot and others cold; the Cauſe of *Earthquakes*, and the *formidable Eruptions of Volcanoes*, are no longer Secrets in the School of Natural Philoſophy.

The Nature and Laws of fluid Bodies hereby ſhewn.

The *Nature* and *Laws* of Fluids are aſcertain'd by no other Science but Philoſophy: We here ſee all that is neceſſary to conſtitute Matter a *fluid Subſtance*; and as ſuch we ſee the different Manner in which they act from ſolid Bodies, and thence learn every thing relating to their abſolute and ſpecific Gravities, the Quantity and Force of Preſſure, the Reaſon why any thing *ſinks* or *ſwims*, the Nature and Uſe of the *Hydrometer*, the *hydroſtatic Ballance*, and every thing elſe in the Compaſs of that Part or Branch of the Science, call'd Hydrostatics.

Alſo the Nature of Springs, and Theory of the Tides.

Again, with reſpect to the *Motion of Fluids*, (or the Science of *Hydraulics*) how excellent is the Service of Philosophy? Before this Science enlighten'd the literary World, with what Uncertainty did we grope after the true Origin of *Springs* and *Fountains?* How poor were our Notions of the *Motion of Fluids* in general! We knew nothing of the Theory of *Aquæducts*, or the Reaſon why Water roſe in *Pumps:* The Suſpenſion of Quickſilver in the *Barometer*, was a mighty *Myſtery*; nor could they ever account for the Action of ſo much as that moſt ſimple Inſtrument the *Siphon*, or common *Crane*: Much leſs could they eſtimate the Force of *ſpouting* Fluids, or ſay what the Action of the Air muſt be to move the Sails of a Mill,

Mill. As to the Doctrine or *Theory of the Tides*, that was indeed vulgarly adjudged to be the Effect of the Moon, but how, and according to what Laws it is effected, was a Matter too deep and difficult for any but *Wiſdom's* ELDEST SON to inveſtigate and explain.

And the true Theory of the Winds.

Then as to the *Doctrine* of WINDS, Philoſophy accounts for all their Phænomena on the plaineſt Principles; and ſhews why ſome are *conſtant* and *invariable*, why others are *periodical* and *alternative*, and why, in all great Latitudes, the Winds are *uncertain*, both as to their *immediate Cauſe*, and alſo as to the *Courſe or Point of the Compaſs* from whence they blow.

The Doctrine of Sounds is only from hence to be underſtood.

The NATURE and THEORY of SOUNDS, and conſequently what may be properly call'd the *Science of Harmony*, was never underſtood till Philoſophy brought it to Light; and this was not till *Newton*'s Days. From him we learn the true Cauſe of Sounds, and trace them from the tremulous Body, thro' all the elaſtic aerial *Undulations*, to the curious *Structure* and *Mechaniſm* of the *Ear*. From him we are taught wherein their various Differences conſiſt; why ſome are *loud*, and others *low*; ſome obtuſe, and flat, others ſharp or acute; ſome more agree-

and alſo the Science of Muſic.

able, and others leſs ſo. Hence all the Grounds of HARMONY, MELODY, and MUSIC, are derived: The *Rationale* of *muſical Proportions*, the *harmonical Diviſion* of Lines, the Structure of *Organs*, *Harpſichords*, and other muſical Inſtruments, are all the natural Reſult of PHILOSOPHY.

The Nature of Vegetation *hereby diſcover'd.*

If we look into the *vegetable World*, what amazing Scenes does Philoſophy preſent to our View! Here Nature annually unſolds itſelf, vegetates and grows into *Plants* and *Trees*. The GENERATION of PLANTS is a myſterious and inconceivable thing; but Philoſophy acquaints us with the wonderful Manner thereof. It ſhews us each Plant in its *Embryo*-State, in the pre-exiſtent Seed, and thereby convinces us of a Truth incomprehenſible and incredible to vulgar Minds, *viz.* That every Plant, of every kind, was compleatly in all its Parts, included in the Seed of each preceding Plant; and ſo the whole Tribe were all contain'd and included in infinite Miniature, in one reſpective original Seed.

The true Theory of vegetable Productions.

Philoſophy next appriſes us of the curious and exquiſite Apparatus of Parts for the Production of the Embryo-plant. The Scene here lies in the *Flower*, whoſe delicate Attire is deſtin'd not only for *Beauty* and *Fragrance*, but principally for the

Purpoſes of Generation. To this End ſerve the *Stamina, with their Apices*, and included *Farina*; the *Stylus* and *Matrix*, with its included Seed; which latter Part makes all that agreeable Variety of FRUIT ſo deſireable and delightful to the Taſte.

The Mechaniſm and Texture of Plants.

By our philoſophical Reſearches we have been enabled to make great Improvements in the Knowledge of the *Make* and *Structure* of the Bodies of Plants and Trees: We ſee the wondrous Syſtem of attracting capillary Veſſels, which imbibe and draw up the SAP, or nutricious Juices of the Earth, by means of the *Roots*, and which is conſtantly perſpired off by the *Leaves*. Beſides theſe, we find other Veſſels deſtined to ſupply the Plant with Air; and aſtoniſhing it is to conſider how each annual Syſtem of Air and Sap-veſſels (which makes the *Annulus* or Ringlet of Wood, by which the Tree does each Year encreaſe its Bulk) unravel and expand itſelf from the *Bark*, in which all the Bulk or liguous Part of the Tree is originally contain'd. Theſe and many other curious and engaging Speculations in BOTANY, we owe entirely to the Invention of *optical Glaſſes*, and conſequently to our favourite Science PHILOSOPHY.

The Nature and Oeconomy of animal Bodies.

But in nothing is the Excellence of Philoſophy ſo conſpicuous as in its ſublime Diſcoveries relating to the Nature and

Structure of animal Bodies, and the Uſes of the ſeveral Parts. By this Science we are taught the *divine Laws* of *animal Mechaniſm*; not in the low nonſenſical Notion of the *Carteſians*, who conſider *Animals* as meer Machines, devoid of Life or Senſation: On the contrary, true Philoſophy repreſents an animal Fabric as one of the nobleſt Works of God, in which *dead Matter* is made *to live*; inert Matter is render'd capable of Action and Motion; Matter abſolutely devoid of any ſenſitive Faculty, endow'd with various Powers of Senſibility, in different Modes, and almoſt infinite Degrees. But above all, to conſider how this inanimate, inert, inſentient Subſtance ſhould be conſtructed with Faculties rendering it capable of Mind and Thought, is the moſt myſterious and amazing Speculation! This fixes the Bounds to philoſophical Enquiries; hitherto can we go, but no farther. Bold preſuming Man may as well pretend to make an Animal, as to account for its Powers and Functions. Theſe are all the Works of infinite Wiſdom, whoſe *Judgment are unſearchable*, and *Ways paſt finding out*.

The animal and vital Functions.

But however inſcrutable the Origin of an Animal may be, the Laws by which the ſeveral *animal Functions* are govern'd, and the *vital Actions* perform'd, are the proper

Subjects of Philoſophy; and tho' the Cauſe, the Manner, and intimate Texture of moſt Parts of animal Bodies are latent and incomprehenſible, yet it is great Satisfaction to think we are admitted to the Knowledge of the Offices, Uſes, and Ends of the ſeveral Parts, and the *general Oeconomy* of animal Nature; which is one of the moſt agreeable and ſublimer Leſſons of Philoſophy.

The Uſes of the Bones, Muſcles, Nerves, *&c.*

Thus we are ſhewn the Nature, Make, and Diſpoſition of the Bones, and how they give *Firmneſs* and *Stability* to the Body. We are next taught the Structure and Uſe of the *Muſcles*, for giving Motion and Strength to the Parts; tho' the *Modus Agendi* (or muſcular Motion) be among the Number of Nature's *Arcana*. We have lately been inſtructed in the true Uſe and Deſign of that noble Organ the Heart, the *Primum Mobile* of animal Nature; from hence we learn the Origin and Uſe of that wonderful Syſtem or Compages of Veſſels we call Arteries and Veins for circulating the Blood and animal Fluids thro' every Part of the Body, for the grand and final Purpoſe of Nutrition. Beſides theſe, we find another wonderful Apparatus of Veſſels or Parts we call *Nerves*, which have their Origin from the Brain and *Marrow*, and are appointed by Nature the *inſtrumental Cauſe of Senſation* to Animals. Thus the *Optic Branch* is deſtin'd for VISION; the *Auditory Nerves* for HEARING; the *Olfactory Pan* for SMELLING; the *Nerves* ſpread over the Tongue and Palate for TASTING, and all the other Nerves, minutely ramified thro' all the Body, for the general Senſe of FEELING. But the immediate Cauſe of this nervous Senſation, whether by means of a *fine ſubtile Fluid*, call'd *Animal Spirits*, paſſing thro' the hollow *Fibrillæ* of the Nerves, or whether by means of a *ſubtile ethereal Spirit* acting upon the ſolid *Capillamenta*, or whether this great Work of Nature be any otherways effected, is as yet a Matter conceal'd from human Intelligence.

The Nature of Senſation,

and animal Secretion.

But whatever be the Cauſe thereof, it is, without all doubt, derived from the noble *Viſcus* the BRAIN: For the Brain is manifeſtly of the *Glandulous Kind*; and the Uſe of the GLANDS is to ſecrete the various Juices deſtined to ſerve the various Purpoſes of *animal Life*. Thus the *Liver* ſecretes the *Bile*; the *Pancreas* the pancreatic Juice; the *Kidneys* ſtrain off the *Urine*; the *Breaſts* collects the *Milk*; the *Teſtes* ſecern and prepare the *Semen*; and other Glands the *lymphatic Liquor*. By ſuch wonderous Contrivances are the Operations of Life carried on, and the animal

Functions perfected thro' the determined Period of Duration for each reſpective Species.

The Uſefulneſs of Philoſophy exemplified.

Theſe, and ſuch like Subjects, enoble the Science of Philoſophy, and give it ineffable Merit and Praiſe: Nor is this all; the extreme Uſefulneſs of this Science, and its univerſal and indiſpenſible Service to all Mankind, command our higheſt Regard for it. I have already obſerv'd, that it is an eſſential Quality of human Nature; *Man is not Man without it:* It gives us all the Preheminence and Dignity due to our Species; every thing beſides being of a meer animal and ſenſual Nature: But to be a little more particular.

In Theology.

In THEOLOGY the abſolute Neceſſity and Importance of Philoſophy is moſt obſervable: No Man can have any certain, any natural, any juſt Ideas of the *Divine Being*, or DEITY, but what he is oblig'd to this Science for. For the inviſible Things of him from the Creation of the World (or from the Works of Creation) are clearly ſeen, being underſtood by the Things that are made, even his ETERNAL POWER and GODHEAD: So that they are without Excuſe who pretend to know God, and diſcourſe of his Attributes from any other Principles than thoſe of Philoſophy; which can only be eſteem'd a genuine *Commentary on the*

Bible of Nature, by which alone we are to be directed in forming every rational Article in the *Creed of that Faith which is according to Knowledge*.

In Ethics.

ETHICS or MORALITY has all its Foundation in Philoſophy: Are not our Manners and Behaviour proportion'd to our Knowledge and Underſtanding? Do we expect Virtue of the ſame Luſtre in a little Mind as in a great one? And can Vice appear to any ſo enormous, deform'd, and deteſtable as to thoſe who beſt underſtand the natural Rectitude of Things. Are we to wonder if thoſe who underſtand not the Reaſon of the Laws of *Right and Wrong*, ſhould unconcernedly tranſgreſs them? If, therefore, we would have Mankind be virtuous, and act aright, let their Minds be early form'd and embued with the Principles of *Philoſophy*, i. e. of Wiſdom and Knowledge.

In Aſtronomy.

In ASTRONOMY we owe every great Improvement to Philoſophy; yea, the whole Science itſelf: We hereby know the Nature of circular and elliptic Motion, and the Laws which govern Bodies moving in theſe or any other Orbits: We hence learn all the *Anomalies* of Motion in a Syſtem of Bodies; and can ſettle the *Theories* for Calculation. Hence the Places, Poſition, *Aſpects*, *Tranſits*, *Occultations*, *Eclipſes*, and other Affections of the heavenly Bodies become known for any given time, paſt, preſent, or to come.

In Chronology. In CHRONOLOGY we are guided by the unerring Hand of Philoſophy. We thence get a true Idea of TIME, and the only juſt Methods of meaſuring it, and dividing it in a natural and proper Manner. By this means our *Periods* and *Cycles*, our *Years* and *Days* become conſtant and certain; which would otherwiſe be vague and unſettled Things, and induce a World of Confuſion in our Accounts, and thereby diſturb the Occurrences of Life.

In Geography and Navigation. In NAVIGATION and GEOGRAPHY, great and manifold are the Uſes of *Philoſophy*. From thence we learn the Size, Dimenſions, and Figure of the Earth; and by the diſcover'd Properties of the wonderful Stone, are enabled to navigate the ſpacious Seas, with much Certainty and Safety. Hence a Communication and Commerce, with other Nations and People, is open'd unto us; we are hereby made, as it were, Proprietors as well as Inhabitants of the Earth: And moſt of the Wealth and Commodities of Life are owing to this philoſophical Improvement of the natural Properties of *Wind* and *Water*.

In Mechanics. In MECHANICS, who does not know that every Axiom, every Principle, every Proceſs, depends upon, and is deduced from one Catholic Propoſition of Philoſophy, *viz. That Action and Re-action are equal*; *and that the Action, or Force of Action, is compounded of the Quality of Matter and Velocity conjointly*, in every moving Body. On this ſingle Principle we account for all the Effects of every mechanical Power or Machine, whether ſimple or compound. For not only the Lever, the Pulley, the Wheel and Axle, the Wedge and Screw, but the Action and Effect of almoſt every Inſtrument for moving heavy Bodies, and every Edge-Tool for dividing Bodies, have their Theory and Rationale in the Principles of *mechanical Philoſophy*.

In Mathematics.

Yea, GEOMETRY itſelf is but the Philoſophy of the Magnitude and Dimenſions of natural Bodies, and their various Proportions and Relations to each other on that Account: And no one who underſtands any thing of the *modern Newtonian Matheſis*, can deny, that its very firſt Principles (*viz.* The *Doctrine* of FLUXIONS) conſiſt in the Doctrine of Motion, and Velocity of the generating Powers of Bodies; and therefore every mathematical Science is, in its general Nature, purely philoſophical: And it would be very eaſy to ſhew, that ſome of the moſt perplex'd Propoſitions of Geometry, are demonſtrated with the greateſt Eaſe by Philoſophy;

phy; and that ſome Problems, impracticable by the *Geometrician*, are ſolvable with the greateſt Facility and Exactneſs by the Philoſopher.

In Hydroſtatics.

In HYDROSTATICS nothing can be done to any good Purpoſe without the Aid of Philoſophy: No Man could conſtruct the HYDROMETER, or the *Hydroſtatic Ballance* in the beſt manner, nor direct their Uſes to ſo many great Purpoſes, as thoſe who underſtand the Grounds of this Science. Who could have inveſtigated or computed the *Center and Quantity of Preſſure* againſt any *Pen*, *Dam*, or *Sluice*, but a Perſon ſkill'd in *mathematical Philoſophy*? And the Perfection of *Mill-work* is well known to depend on a thorough Skill in the Theory of ſpouting Fluids, ſince only one certain Ratio of the Velocity of the Water, and that of the Wheel, can be admitted to anſwer that End.

In Hydraulics.

In HYDRAULICS, the Conſtruction of all Kinds of *Pump-work*, *Water* and *Fire-Engines* entirely depend on the Theory of the *Motion of Fluids*. Hence the Art of *Levelling*, the Draining of Marſhes, the making of *Fountains*, or *Jet-d'Eaus*, the Praxis of *Reſervoirs* and *Aquaducts*, the building of *Bridges*, *Locks*, *Sluices*, and an Hundred other Neceſſaries of Life, owe their Origin, and their ultimate Perfection.

In Optics.

In OPTICS, what a Variety of the moſt curious Inventions and Structures of Inſtruments has of late flow'd in upon us? Scarce a Year or Month can paſs not pregnant with Optic Diſcoveries and Contrivances: And yet none of theſe Inventions, none of thoſe Machines, owe their Origin to any other Source than PHILOSOPHY. 'Tis this Science only can diſcover not only why a Microſcope can aſſiſt the Eye to diſcern ſmall Objects, or a Teleſcope diſtant ones, but it enables the Artiſt to give the beſt Form to his Glaſſes, and to diſpoſe them in the beſt Manner, in the Structure of theſe and other Inſtruments, to anſwer the Ends propos'd. And who can ſay to what Limits this growing Science may yet extend, under the Conduct and Direction of PHILOSOPHY.

In Perſpective and Dialing.

I need not ſay that PERSPECTIVE, DIALLING, or the *Art of Shadows* in general, is purely philoſophical. Theſe Arts conſiſt only in the various Repreſentations and optical Views of Nature: And to repreſent Things under the ſame Appearance and reſpective Relation which they have to each, requires no ſmall Art or Skill in Philoſophy. How little do we eſteem a meer mechanic Dialiſt, who knows nothing of the Reaſon or Philoſophy of his Art? Who ſets the *Stile of a Dial* pointing to the *Pole*, for no other Reaſon but becauſe he cannot make it ſhew the Hour in any other Poſition.

In Painting.

Painting, as it conſiſt in an *exact Imitation* of Nature, by a judicious Mixture of *Colours*, and a proper Diſpoſition of various *Tints*, *Lights*, *Shades*, &c. muſt be pronounced a *philoſophic Art*, whoſe Theory depends on the moſt refined Principles of this Science. A Perſon, by a thorough Skill in the *Doctrine* of *Light and Colours*, might almoſt make a Picture *a Priori*: How natural, genuine, and excellent muſt that Portrait be, which is executed by a Hand whoſe every Motion is directed by the Dictates of preſiding Science?

In Muſic.

As to Music, I have already obſerv'd, that Philoſophy is the very Soul of that Science; and tho' it may be learn'd as an Art, by meer mechanic Practice, and a good Ear, (as it is call'd) yet I believe if any Musician were to join the *Theory with the Practice*, his Compoſitions and their Airs would be thereby greatly improved; and the Pleaſure, Sweetneſs, and Harmony of Sounds would be exquiſitely heighten'd, even to his own Senſation. And who does not know that a Mathematician, by the bare Dint of Philoſophy, can compoſe a Piece of Muſic, without any Aſſiſtance from either Art or Ear? Of how much more Service then muſt it be to thoſe who happily poſſeſs both?

In the Doctrine of Projectiles.

GUNNERY, or the *Doctrine of* PROJECTILES, is, perhaps, the only Art whoſe Theory is purely philoſophical throughout, and that yet has receiv'd little or no Advantage from this all-perfecting Science. Till Sir *Iſaac Newton*'s time, all that was wrote on this Subject was errant Jargon: Since him we have had many Pieces on the *parabolic Hypotheſis*, whoſe Theories are founded *in Vacuo*, and vacuous Theories they are indeed: Their Authors not underſtanding *true Philoſophy*, could not inſtruct Mankind in the *Principles of Gunnery*; and this is but too well known an Inſtance of the fatal Conſequences that attend either the Ignorance or Neglect of Philoſophy, in the momentous Affairs of Life. However, ſomething conſiderable has already been done, and more may ſoon be expected, to give the Engineer all the Advantages he can poſſibly have from the preſent Matheſis and Philoſophy.

In Chemiſtry.

CHEMISTRY, conſider'd as an Art, has its Theory wholly dependent on the philoſophic Doctrine of Attraction and Repulſion: And I need only mention how much the *chemical Doctrine of* ELEMENTS has been of late improved and refined by philoſophic Diſcoveries and Diſquiſitions. How groſs their Notion of *four Elements!* how imperfect their Number of *three!* how abſolutely ignorant were they of the moſt conſiderable of the real conſtituent Parts of natural Bodies, in mean *Air in its fix'd State?* Again, how vulgar and unphiloſophical are their Notions of *elementary Fire?* And to ſay Truth, it appears from their Writings, that there is nothing which they ſeem ſo little to underſtand as the true Nature of their moſt familiar Element *Fire*; and in which they ſtand in ſo much Need of the Light of the *Newtonian Philoſophy*, which alone gives a rational Account of that and every other chemical Element.

In the Art of Healing.

In PHYSIC and SURGERY the whole Field of Philoſophy, in its utmoſt Extent, is concern'd; For, on the one Hand, if we conſider the human Body as a Syſtem of *Solids* and *Fluids in Motion*, this will require, at once, a thorough Knowledge in all the *Laws* of *Motion*, of *Action* and *Re-action*, of *Attraction* and *Repulſion*, of every *mechanical* Principle and Power, the *hydroſtatic* and *hydraulic Laws of Fluids*, and every other Principle of Nature's Agency in one, who has the Care of ſuch a noble Machine to keep it in Order, and to rectify it when out. On the other Hand, with reſpect to the *Materia Medica*, 'tis evident the utmoſt Skill in the *philoſophical Principles of Chemiſtry*, *Botany*, *Pharmacy*, &c. is required to render thoſe Arts of the greateſt Service to Mankind, in the Cure of numberleſs Diſorders to which they are liable.

And in all other Arts and Sciences.

And what ſhall I more ſay? For the Time would fail me to ſpeak of *Anatomy*, and of *Botany*, and of *Agriculture*, and of *Gardening*, and of every *mechanic and manual Art and Trade* alſo, even down to *Brewing* and *Baking*; whoſe Profeſſors and Artiſts, by the various Improvements and Precepts of Philoſophy, have been enabled to explain to us the *animal Oeconomy*, the Nature of *Vegetation*, the *Culture of Plants*, the *Improvement of Land*, the *Manufacture of Goods*, and meliorating the Methods of procuring and preſerving our *Bread and our Meat*, our *Beer and our Wine*. And it is in my Power to ſhew, that a Man in every Vocation, in every Employment of Life, has occaſion enough for the Aſſiſtance of this Science; and that in every Occupation, no Artiſt can execute and ſucced ſo well, as he that keeps cloſe to Nature, and beſt underſtands her Operations, which, as I have ſhewn, is all that we are to underſtand by PHILOSOPHY.

How deſireable a Study is Philoſophy,

If then all I have ſaid be true, (and who will ſay it is not?) if PHILOSOPHY be of that Importance to Mankind, as I have ſhewn it is, we need not wonder to ſee the wiſe and knowing Part of Mankind, in every Age, have ſo great an Opinion of ſuch a Science, and ſo deſirous of being initiated into its Myſteries. How ardent were the Purſuits of *Plato*, *Pythagoras*, *Socrates*, *Ariſtotle*, *Seneca*, and other Sages of Antiquity, after Philoſophy, even in its *Infant State?* But to ſee and enjoy it in its preſent Glory and Perfection, what Studies would have been too arduous, what Voyages too dangerous, what Climates too diſtant for thoſe Champions of Wiſdom not to have undertaken, with the greateſt Alacrity and Pleaſure? How are all the great Genius's of every Age endeavouring to eternize their Memories by inventing new Syſtems of Philoſophy? Yea, how frequently do we obſerve Perſons deſtitute of all Genius, and ſcarce entitled to common Senſe, anxiouſly aſpiring to the Honours of this Science? So great are the Charms of Knowledge, even to the *Eunuchs of Science* themſelves!

and confers even Happineſs itſelf on its Poſſeſſors.

It is very remarkable, that whereas other Arts and Sciences give only a Poliſh to Mankind, and make them expert and ingenious, this of Philoſophy, in a peculiar manner, confers not only the higheſt Delight, and the moſt tranſporting Pleaſure to the Mind, but even HAPPINESS itſelf. The Attribute of Philoſophy is FELICITY by general Conſent: Thus the inſpir'd Penman—HAPPY *is the Man that findeth Wiſdom.*—Thus *Virgil* too, FÆLIX *qui potuit Rerum cognoſcere Cauſas.*

The Means of attaining this Science.

After diſcanting ſo largely in the Praiſe of a Science, it may be expected I ſhould ſay ſomething of the beſt Ways and Means of attaining to it; but tho' this be no Part of my Deſign, yet it will be expedient to hint, that for thoſe who would make any tolerable Proficiency in the Study of Philoſophy, there are three ſeveral Methods for that Purpoſe, *viz.*

Firſt, by reading.

Firſt, *Attentive reading*, or a diligent Peruſal of the beſt Books that are wrote upon the Subject, eſpecially thoſe in the ſyſtematical way, if only a general Notion be propos'd. But to be a Maſter of the Science, requires an *univerſal Matheſis in the Newtonian Stile and Manner.*

Secondly, by proper Inſtruments.

Secondly, A ſmall *Apparatus of Inſtruments*, for making Obſervations on Nature, as *Microſcopes*, *Teleſcopes*, an *Air-pump*, *Hydroſtatic-Ballance*, *Barometer*, *Hermometer*, &c. But eſpecially the firſt of theſe, *viz.* the MICROSCOPE, both for the Rocket and for the *Camera Obſcura*: For this one Inſtrument will diſcover more of the ſecret Scienes of Nature's Operations, than all the others of the optical Kind put together. They are that ſort of *Spectacles* which every wiſe Man ſhould wear.

Thirdly, by Courſes of Experiments.

Thirdly, The moſt ready and eaſy Means of attaining to a general Knowledge of this Science, is a *Courſe of Lectures and Experiments* on the various Subjects thereof. And this will readily appear if we conſider only the Deſign of it, which is to repreſent the principal Appearances of Nature to the View of the Audience, and to illuſtrate the Nature and Truth of them by Experiments, on a large and general Apparatus of Inſtruments: So that ſuch a Courſe of Experiments is, in reality, but a general and diſtinct View of Nature in Miniature; and therefore is of the ſame Uſe to the Mind, as a Teleſcope to the Eye. It brings the remote, confuſed, and diſtant Scenes of Nature near to our Sight; and gives a glorious Inſpection of the Manner and Rationale of moſt of the Operations carried on therein. To ſay the Truth, there is no other way but this by which one can acquire any tolerable or adequate Notions of the real Principles of this Science. A verbal Account of this Science, in Books only, avails little more than *Don Domingo*'s Account of the World in the Moon. If to Books we join an Apparatus of proper Inſtruments, we ſhall more rationally and ſucceſsfully conduct our Enquiries and Reſearches into Nature: But who is there that will be at the Expence of a general Apparatus, much leſs of a very particular one, for this Purpoſe? Again, who have Leiſure, and if they have, will be at the Trouble of a conſtant Series of Experiments, to explore by themſelves the endleſs Myſteries of Nature? Very few, indeed: Nor can we expect it ſhould be otherwiſe; for there is required for this Purpoſe a moſt peculiar and critical Genius, attended with a natural Impulſe to ſuch Diſquiſitions; and not only that, but what is ſtill more rarely found, a Capacity for a *phyſical Matheſis* in a very high Degree; for unleſs a Man be qualified in all theſe Reſpects, he can never make a good Proficiency by himſelf in this Science, nor be any ways fit for inſtructing others as a *Profeſſor*.

From what has been ſaid we may fairly make the following Inferences to compleat the Praiſe or juſt *Encomium* of Philoſophy.

Firſt Inference.

Firſt, I have already obſerved in general, that it is by this kind of Knowledge only that we attain to the true Refinement and Perfection of our Nature, which does not conſiſt in the *Matter*, *Form*, or *Animality* of our Bodies, but in the Powers and Faculties of the Mind. The more a Perſon, therefore, is imbued with the Principles of this Scence, the more properly he may be ſaid to be *Human*, or approach more nearly to the ultimate Perfection and Eſſence of human Nature: Philoſophy is, therefore, the grand Characteriſtic of Man.

Second Inference.

Secondly, The great Service of this Science for improving the NATURAL SENSE, is from hence moſt evident. How great are the natural Bleſſings of Senſe! And how miſerable do we think ourſelves when deſtitute of any one! when blind, when deaf, *&c.* How anxious are we to preſerve our natural Sight, Hearing, *&c.* and at what great Expence of Money and Pain do we endeavour to retrieve them when loſt? If theſe Things then are ſo precious and important to our Happineſs, how highly ſhould we eſteem that Science which affords ſuch vaſt Improvements to each of them? Nature confines your Proſpect within narrow Limits, but Philoſophy expands or enlarges the *Sphere of Viſion* near *ten Million* of times by the Teleſcope. And by Nature we are permitted only to view the more groſs and courſe Part of her Works; and yet in theſe what Pleaſures do we find? But when Philoſophy preſents the Microſcope to the Eye, what wondrous Scenes appear! what numberleſs Objects before unſeen; what endleſs Variety of Species; and what amazing Beauty and moſt exquiſite Perfection raviſhes the Eye, in its Survey of this infinite new Creation? And yet, after all, with what Indifference do we treat, and how little do we regard this ſurpriſing Improvement of our Senſes?

Third Inference.

Thirdly, I have ſhewn, that all our *moral Senſe*, and *religious Sentiments*, muſt ariſe from the Principles of this Science; and here I ſhall add, *That Philoſophy is greatly ſubſervient to Revelation, eſpecially that of the Chriſtian Religion, and eaſily accounts for or removes moſt of the Difficulties and Diſputations about it.* For by acquainting us with the Manner in which primary and ſecundary Cauſes act, the firſt abſolutely and independently, the laſt mechanically and conſequentially, we are brought to ſee that the firſt may interpoſe to produce any of the Phænomena of Nature, without interrupting the Courſe of her Operations in the ordinary way. The Power which firſt produced an Acorn, might, at any time, create the Oak which bears it: The infinite Wiſdom that firſt eſtabliſh'd the Order of the Generation of Animals in the common way, may, at any time, produce a Man, either adult, as the firſt *Adam*, or in Utero, from a ſpecial or peculiar Animalcule, as in the Incarnation of Chriſt: So that, in general, we hereby ſee that there is nothing abſurd, unreaſonable, or inconſiſtent with the Nature of Things, in the *Doctrine of*

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a miraculous Power; and conſequently all thoſe ſupernatural Effects, which are ſaid to have been produced by Chriſt and his Apoſtles, are no ways unworthy of our Belief. 'Tis evident St. *Paul* often appeals to *natural Philoſophy*, to illuſtrate and inforce the Doctrines of reveal'd Religion, particularly in the Caſe of the *Reſurrection*, (1. *Cor*. xv.) the moſt important of all others. Again, we find in the large Field of Philoſophy, ſeveral ſurpriſingly analogous Repreſentations of the different States and Life of Man: Thus the various State of the Caterpillar, Chryſalis, and Fly, (all different Forms of the ſame Creature) ſeem plainly to refer to and typify the preſent, the mortal, and the future glorified States of Man. I might here ſhew how readily moſt of thoſe fruitleſs and perplexing Diſputes, which have ſo much and ſo long diſtracted the Chriſtian Scheme, admit of a thorough Deciſion from the Principles of Philoſophy, particularly thoſe relating to the Soul, the intermediate State, &c. But here I muſt ſtop for fear of giving Offence: Too much Light blinds the Eyes, and puts Men ſtrangely out of Humour. The Day is not uſher'd in at once, but dawns upon us by degrees.

Fourth Inference.

Fourthly, We hence learn of what ineſtimable Service Philoſophy is of to Mankind, in utterly *deſtroying the very Foundation*

dation of Enthuſiaſm, Superſtition, and all Kinds of Impoſture. And it is evident, that nothing but true Philoſophy can do this; becauſe theſe Things are wholly founded in Ignorance, and are truely Works of Darkneſs: But at the Approach of this Science, Ignorance retreats with Shame, and Impoſtors, conſcious of their Villany, ſkulk in Corners. What glaring Inſtances of this Truth has this laſt Century produced? Where are now the Wizards and Necromancers, the Pſeudo-Prophets, the Demoniacs, the Wonder-working Relicts, and the Group of omnipotent Prieſts that formerly ſwarm'd in this Iſland? Why, at the Feet of Philoſophy they bow'd, they fell, they lay down; where they bowed, there they fell down dead. So let all her Enemies periſh, O Lord; but let them that love her be as the Sun when he goeth forth in his Might.

Fifth Inference.

Fifthly, It appears from what has been ſaid, that it is highly for the Honour and Intereſt of every Individual to underſtand Philoſophy more or leſs: As it is eſſential to the Perfection of our natural, moral, and religious Senſe, we cannot neglect or deſpiſe it, without doing Violence to Reaſon, yea, to our very Nature; and conſequently thereby incur the greateſt Diſhonour and Shame. If we conſider it in regard to Mens Callings and Buſineſs, we ſhall find it greatly conducive to their Intereſt to have a general Notion of this Science: For it has been ſhewn that it is the Foundation of almoſt every Art in Life, and gives the Rationale thereof: Can the Advantage of underſtanding it then be doubted by any Artiſt whatſoever? Can it be thought a Man of Theory and Science, *i. e.* who underſtands the true Nature and Qualities of the Subjects of his Art, ſhould not be able to manufacture and improve them to a much greater Advantage, than the *meer Mechanic* that knows nothing but by Practice? This is ſo far from being a Queſtion, that we ſee it verified every Day, in every Profeſſion of Life, agreeable to *Solomon*'s Obſervation. —*Seeſt thou a Man diligent (or dexterous) in his Buſineſs? He ſhall ſtand before Kings, he ſhall not ſtand before obſcure People.*— *The Wiſe only ſhall inherit Glory, and Shame ſhall be the Promotion of Fools.*

Sixth Inference.

Sixthly, Philoſophy alone is the Source of all *true, ſolid, or real Learning*: For what is Learning but an *Attainment to the true Knowledge of Things?* And if ſo, by what other Means can this Knowledge be acquired, than that of experimental Philoſophy? By no other, certainly. For what can Philology do? Only acquaint us with the Knowledge of Words, and that is meer *verbal Learning*: What can *Metaphyſics*

taphyſics do? Nothing to the Purpoſe, for want of *Data* and Experiments. No true Knowledge can reſult from Hypotheſes, however ſo ingeniouſly contrived or diſguiſed. What can *Logic* do in this Reſpect? Only teach us how to digeſt or methodize the Principles of Knowledge which we acquire by Philoſophy, and Reaſon from them in a proper Manner. As to *Poetry*, it is ſo far from being the Source of any Learning, that, on the contrary, it has, for its Subject, *pure Fiction*, which is quite its Oppoſite: If *Wit* and *Fancy* be your Taſte, read *Poetry*; if *Wiſdom* and *Learning*, attend on Philoſophy. *Criticiſm*, notwithſtanding all its high Pretenſions, has nothing in it worth the Name of *Learning*. As to thoſe we vulgarly call the *learned Profeſſions*, viz. *Law*, *Phyſic*, and *Divinity*, I appeal to any Man's Judgment if there be any thing in the two laſt by which they can merit that diſtinguiſhing Epithet, which is wholly due to that Philoſophy which is founded on Obſervation, Experiment, and mathematical Ratiocination. I take no Notice of the *Law*, it being a ſort of Learning *Sui Generis*, and therefore does not come under my Cognizance. In ſhort, let Men be ever ſo ambitious of being eſteem'd learned, yet while they are unacquainted with the *Newtonian Phyſico-Matheſis*, their Learning muſt be extremely ſuperficial, and fit only for meer nominal *Maſter's of Art*.

Seventh Inference.

Seventhly, It is very manifeſt from what has been premiſed, *That the Honour, Commerce, and Wealth of a Nation, bear a high Proportion to the Culture and Improvement of Arts and Sciences, and conſequently to Philoſophy, which is the Foundation of all.* The Truth of this Inference nobody will deny: For what Honour or Renown can be any how poſſible to an illiterate and barbarous People? In what Contempt do all Mankind hold the *Chineſe*, the *Tartars*, the *Indians*, &c. for their Pride, their Ignorance, their Brutality and Inhumanity, which with all other enormous Vices, proceed from their want of Erudition, and the Study of the Sciences? Do not they who undertake to poliſh and civilize a ſavage and rude People, do it by introducing the Study of the Arts and Sciences? What an illuſtrious Experiment of this ſort have we ſeen tried with Succeſs, on the wild *Muſcovites*, by *Peter* the Great? And what immortal Honours has he thereby procured to himſelf and his Empire? And, to look nearer Home, how different a Face does our own Nation bear at this time, from what it did a few Centuries ago? When Ignorance of Science, Slavery, and Superſtition in Religion bore Sway here, what Infamy attends the Hiſtory of thoſe Times!

But when Liberty came, and introduced Philoſophy and true Religion, how greatly did we riſe in Reputation, and how juſtly renown'd for Learning above all the Kingdoms of the Earth! And I think we may truely affirm, That it is more *Honour to be King of the learned* Britiſh *Nation, than to be Emperor of all the World beſides.*

In- In the Eighth and laſt Place we may juſtly infer, That *Natural Philoſophy* is, in a moſt peculiar Manner, the Gift of Heaven; the greateſt Bleſſing and Ornament to Mankind; the univerſal Parent of all Arts and Sciences; and therefore ſuperior to them all in Dignity and Honour. That it is a Science which merits the higheſt Regard, and alſo meets with it, from all the truely Great and Wiſe among Men: That it ſtands upon the eternal Foundations of Truth, and muſt therefore endure for ever: That as to its Theory or Rationale, it is the moſt ſublime and arduous: It is a Myſtery that has been hid from Ages, and from Generations; but is now made manifeſt, and according to the Commandment of the everlaſting God, is made known to all Nations, by the divine Writings of the immortal Sir Isaac Newton

ON

ON THE ANTI-NEWTONIANS;

OR,

Pſeudo-PHILOSOPHERS *of the Age.*

NO more let Poets boaſt their Golden Age,
Nor Halcyon-Days employ the metre'd Page;
Let Times of Darkneſs in Oblivion lie,
And tune your Voices by Philoſophy.
The Age of Science let the Muſes ſing,
And to great NEWTON's Shrine their Offerings bring.
His *Manes* let each grateful Sage adore,
Who taught us more than all Men knew before,
Whoſe *Genius* moves o'er the Chaotic Mind,
And gives thereto the human Form deſign'd.
His beaming Diction did each Truth diſcloſe,
And Error fled affrighted when it roſe.
In Paths of Science NEWTON leads the way,
So clear, that ſcarcely the Perverſe can ſtray.

Ye Sophs ſuperb, lay Pride and Ign'rance by,
And learn of humble NEWTON—*not to lie.*
Let him thro' your dark Souls transfuſe the Light,
And ſet your awkward Wry-neck'd Spirits right.

World-mongers vain, your Elements forego,
Nor how the Orbs were made, preſume to ſhow.
Inſcrutible are Works of Deity,
Read the *Principia*, learn your A, B, C.

Ye Theoriſts too, who impiouſly pretend
God's Handy-Works to criticiſe and mend:
Retract your Errors, learn from common Senſe,
All Pleaſures in Variety commence.
Your Earths devoid of Mountains, Rivers, Seas,
The Wiſe would ſhun, and you alone they pleaſe.
Let delug'd Worlds no more your Wits employ,
To Ship-wreck Nature, and our Faith deſtroy.

Ye Sons of ſable Night, whoſe wretched Strife
Is to defraud the Brute of Senſe and Life:
Allow them Speech, they ſoon would change the Scenes,
Prove *they* have Reaſon, *you but meer Machines*.
Much bolder yet, and blaſphemous the Pen
That dares to fix on Free-born Sons of Men
The horrid Yoke of Fate, that ſtrives to blind
By *Laws of Mechaniſm* the heavenly Mind.
What Reaſon dictates, *virtuouſly* we chuſe,
Nor are we *vicious*, if we muſt refuſe.
Who this denies, muſt needs himſelf belie,
And charge his Failings on the Deity.

Ye mitred Chiefs of Error's wildeſt Band,
Who can the ſov'reign Power of Truth withſtand.

Who even Demonſtration can beguile,
May triumph over Reaſon for a while;
But you at laſt, reluctant, ſhall obey
The Voice of Nature, and be forc'd to ſay,
The *Sun ſtands ſtill*, and NEWTON's *is the Day*.

And thou, proud *Polignac*, ſhalt laſt defame,
And treat with Scandal great Sir ISAAC's Name;
Inſpir'd, I pray, by what dilinquent Muſe
That dares the Firſt and King of Men abuſe?
The *Nine* revere him, and with Pride combine
To *ſing the Writings and the Man divine*.
Preſumptuous Bard! what Mortal could ſurmiſe
That *Poets* ſhould on NEWTON criticiſe!
That *Fiction-Mongers* ſhould in Learning rule,
And dictate to the Sage of NEWTON's School:
With equal Scorn and Ridicule we hear
From thee a Panegyric, or a Sneer.
You prove a *Plenum*, ſooth; and 'tis as plain
You prove at large a *Vacuum* in the Brain.
Extol *Carteſius*, let him be your Theme,
And o'er his *Vortices* ſupinely dream.
But the *Principia* ſpare, nor treat with Scorn
What you, to underſtand, were never born.
Shall Bards, low halting, on poetic Feet
Aſſail great NEWTON in his high Retreat?
Shall Wittlings, void of mathematic Skill,
Say what are *Nature's Laws* or *Nature's Will*?
Matheſis' boaſted Chief, direct to weigh,
Number and meaſure what he ſhall eſſay:
Forbid it, Heavens! and blaſt the impious Strain
That takes ſo oft your hallow'd Name in Vain.

Againſt *Lucretius* let the Verſe be writ,
Inferior much in Judgment as in Wit.
Here ſtop, meer Bard, for know the Learn'd and Wiſe
An *Anti-Newton* from their Hearts deſpiſe:
What NEWTON writes, admits of no Conteſt,
This Popiſh Tongues, tho' pad-lock'd, have confeſt.
Tho' *Hecatombs of Scribblers* him aſſail
Yet great is Truth, and ever ſhall prevail.

Not ſo elate, methinks *Zoilus* cries,
Your ſanguine Hopes excite my deeper Sighs;
Ill-fated Incidents each Day preſage
The direful Advent of a gloomy Age;
Reflect how oft the moſt refulgent Day,
Precedes a Night of Horrour and Diſmay:
Your SUN is ſet; and each revolving Year
Some *Stars of primal Order* diſappear.
And grant I may, for once conjecture right,
Theſe Times appear the Twilight of the Night,
For ſee your boaſted Science ſet at nought,
How cheap is Wiſdom, yet how little ſought;
Her Schools decline, her Pupils fall away
And ſicken with the ſmall Remains of Day.
See Dulneſs' Minion now the firſt in Fame
And Stars and Garters urge him to declaim;
See Judges, Prelates, and the Courtly Fair,
To hear the matchleſs Orator repair:
See Nature's Senate, erſt of great Renown,
Now dwindling into Foplings of the Town.

How ſome their great Law-giver will deſpiſe,
And to *Batavia's* Idol Sacrifice:
See Learning's diſregarded Sons appear,
Scarce known to Fame, in Diaries once a Year,
See *Hocus-Pocus*, Puppet-Shews and Plays,
The gay polite Diverſions of our Days:
See Time demoliſh'd with egregious Skill,
By Chiefs——at E, O, Billiards, and Quadrille.
See yonder, Mankind crowding in the Lump,
To ſee the Conjuror in a Bottle jump;
How willingly in *Folly's Nooſe they're led*,
To ſee the *Necromancer* raiſe the Dead:
Lo, there your Great, your Wiſe, your worthy Ones!
How juſtly cries *Britannia*, *O my Sons!*
Such are the Omens ———

Enough, forbear on all Mankind to rail,
Your Omens and Predictions nought avail:
Nor more alarm us with a gloomy Night,
The glorious Sun of Learning ſtill ſhines bright:
And as in Fields of Æther, 'twill be here,
The *old* extinct, *new Stars* ſhall ſtill appear.
The *Bats* and *Owls*, and other Birds of Night,
Do not abhor but *can't endure* the Light:
So 'tis with us; the weak and feeble Mind,
With Learning's mighty Blaze would be ſtruck blind.
You ne'er could Wiſdom's Votaries *many* call,
There muſt be a great Vulgar and a ſmall:
Nor dare that awful Synod to deride,
Where Erudition's favorite Sons *preſide*:

Where *true Nobility* expands her Sphere,
And Luſtre adds, and Greatneſs to the Peer.
Where Kings inhaunce the Glory of their Crown,
And Charles, by founding it, acquir'd Renown.
There *Britiſh Genii*, with unrival'd Skill,
In Newton's glorious Cauſe employ the Quill.
What if ſome wealthy Noodle now and then,
To ſhew his want of Senſe, employs his Pen,
Inſpir'd by Dulneſs, who his Cranny fills
With all the Weight of Lead in Mendip-Hills:
Shall we from thence conclude the Age too blame?
No, let ſuch write, and curſe themſelves with Fame.
What, tho' ſo few attend in Wiſdom's School,
'Twere raſh to ſay, that every's Man's a Fool:
Each future Age a *Pope* or *Locke* may yield,
Perhaps a *Richmond* too, and *Cheſterfield*.
A little Remnant we ſhall always find,
Endu'd with Senſe, with Spirit, and with Mind.
In every Rank of High and Low you'll view,
A Race diſtinguiſh'd, and a choſen Few:
How bleſt their Eyes, which Nature's Beauties ſee!
How bleſt their Ears, which hear her Harmony!
How bliſsful thoſe who underſtand her Laws,
And of each great Effect can know the Cauſe.
Thrice happy All whom Newton can inflame
To ſeek, by Science and by Virtue, Fame.

Ye Sons of Art, great Newton's Worth unfold,
To endleſs Ages let his Deeds be told:
To diſtant echoing Worlds exalt his Name,
And in eternal Pæans ſound his Fame.
No Laurel Crowns, or Monuments prepare,
(Such Trophies mortal Kings and Heroes wear.)
In Works of Genius ſhall his Altars riſe,
And Glory build his Temple in the Skies.
Where he, by Wiſdom ſceptred, from her Throne,
Shall reign o'er all ſuperior, and alone.

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